CLUSTER 1 – NUMBER AND OPERATIONS

A. NUMBERS AND NUMBER SENSE
Students will understand and demonstrate a sense of what numbers mean and how they are used. Students will be able to:

M1A1.11 Describe the structure of the real number system and identify its appropriate applications and limitations.

B. COMPUTATION
Students will understand and demonstrate computation skills. Students will be able to:

M1B1.11 Approximate solutions, determine the reasonableness of answers, and justify the results.

I. DISCRETE MATHEMATICS
Students will understand and apply concepts in discrete mathematics. Students will be able to:

M1I2.11 Use networks to find solutions to problems.

M1I4.11 Use matrices as tools to interpret and solve problems.

CLUSTER 2 - SHAPE AND SIZE

E. GEOMETRY
Students will understand and apply concepts from geometry. Students will be able to:

M2E1.11 Draw coordinate representations of geometric figures and their transformations.

M2E2.11 Use inductive and deductive reasoning to explore and determine the properties of and relationships among geometric figures.

M2E3.11 Apply trigonometry to problem situations involving triangles.

F. MEASUREMENT
Students will understand and demonstrate measurement skills. Students will be able to:

M2F1.11 Use measurement tools and units appropriately and recognize limitations in the precision of the measurement tools.

M2F2.11 Derive and use formulas for area, surface area, and volume of many types of figures.

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CLUSTER 3 - MATHEMATICAL DECISION MAKING

C. DATA ANALYSIS AND STATISTICS
Students will understand and apply concepts of data analysis. Students will be able to:

M3C2.11 Predict and draw conclusions from charts, tables, and graphs that summarize data from practical situations.

M3C3.11 Demonstrate an understanding of correlation and how it relates to data analysis.

M3C4.11 Demonstrate an understanding of the idea of random sampling and recognition of its role in statistical claims and designs for data collection.

D. PROBABILITY
Students will understand and apply concepts of probability. Students will be able to:

M3D1.11 Find the probability of compound events and make predictions by applying probability theory.

M3D2.11 Create and interpret probability distributions in simple cases.

J. MATHEMATICAL REASONING
Students will understand and apply concepts of mathematical reasoning. Students will be able to:

M3J1.11 Analyze situations where more than one logical conclusion can be drawn from data presented.

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CLUSTER 4 – PATTERN

G. PATTERNS, RELATIONS, FUNCTIONS
Students will understand that mathematics is the science of patterns, relationships, and functions. Students will be able to:

M4G1.11 Create a graph to represent a real-life situation and draw inferences from it.

M4G3.11 Model phenomena using linear, quadratic, and exponential functions.

M4G4.11 Identify a variety of situations explained by the same type of function.

H. ALGEBRA CONCEPTS
Students will understand and apply algebraic concepts. Students will be able to:

M4H1.11 Use tables and graphs to interpret expressions, equations, and inequalities.

M4H2.11 Recognize direct and inverse variation in equations, graphs and equations and solve problems involving direct and inverse variation.

M4H3.11 Formulate and solve equations and inequalities.

M4H4.11 Analyze and explain situations using symbolic representations.

K. MATHEMATICAL COMMUNICATION
Students will reflect upon and clarify their understanding of mathematical ideas and relationships. Students will be able to:

M4K1.11 Restate, create, and use definitions in mathematics to express understanding, classify figures, and determine the truth of a proposition or argument.

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